

REMARKS

The courteous interview extended to applicants' representatives by Examiner Listvoyb on March 2, 2010 is acknowledged with appreciation.

It was pointed out during that interview that the chain length of the polyisobutylene amine is such as to make the reaction product compatible with a non-polar (non-aqueous) colorant dispersion environment, for example, an oil-based environment. The chain length is at least 50 carbons since shorter lengths are not suited for non-polar systems. Since there is no *in hoc verba* recitation of this chain length in the written description, alternate language based on application pages 5 and 6 has been inserted into the claims.

It is respectfully submitted that the rejection of claims 1 and 11-21 under 35 U.S.C. § 103 over Winter in combination with Patil should not be continued. Winter relates a synergist (not a dispersant) for improving the properties of aqueous pigment preparations and contains up to 30 carbons when interpreted to include PIB (Office Action page 4). Patil relates to an ashless dispersant and there is nothing in any portion of its disclosure which teaches, suggests or even hints that any material disclosed therein can act as a dispersant for a colorant, or that there is any possibility that an isolated polyisobutylene moiety extracted from the succinimide might have some value if, instead of being "grafted with aromatic N-containing monomers" (Col. 3, lines 31-32), it was reacted with a non-N-containing monomer. There is no reason to combine Winter and Patil in the first instance, and nothing in the combination which would suggest the claimed polyalkyl benzimide polymeric reaction product would be

suitable as a dispersant for a non-polar (non-aqueous) colorant dispersion. That result is surprising, unexpected and unpredictable.

In more detail, the imides of Winter are those compounds of Formula I which is reproduced on page 2 of the Office Action. The scope of Formula I is immense. Ignoring branching and cyclic analogs and possible substitutions, R1 presents 40 different entities, and each of R2 through R5 presents 259 possible entities (10 alkyls, 10 alkoxys, at least 3 halogens, 11 OR6 since R6 (and R7) can be 11 possible moieties), 49 NR6R7, 11 COOR6, 49 CONR6R7, 49 NR6COR7, 49 SO2 NR6R7, at least 16 SO2M since M is any cation having a valence of 1-3, NO2, CN, and CF3). Since R2 through R5 can be the same or different, there are 120 possible combinations even before considering the possible identity of the 259 entities. Even under this very simplified calculation, the number of possibilities runs well into the millions. It does not take into consideration that each of the R1 groups can be substituted by up to 5 entities and each of the 5 entities is selected from 20 possibilities (6 alkyl groups, 6 alkoxy groups, 5 aryl groups, hydroxy, carboxy and sulfo), thereby raising the number of R1 possibilities to 140. When possible branching and cyclic analogs and possible substitutions are taken into consideration, this number extends well into the billions, if not more.

The Office Action states that when there is 1 particular combination where R2, R4 and R5 in Formula I are hydrogen, R3 is COOR6 and R6 is hydrogen, the imide is "based on" trimellitic acid. Thus, the Office Action is stating that 1 out of more than a billion possibilities is "based on" trimellitic acid. Since there is nothing in Winter which suggests these selections be made, that statement is in reality just an observation that

Formula I is sufficiently broad (i.e., generic) as to encompass trimellitic acid imides in addition to billions of other possibilities.

The Office Action observes that when a species is clearly named, a species claim is anticipated, citing *Ex parte A*. This observation is not relevant since there is no assertion about anticipation in the rejection. Indeed, the Office Action specifically acknowledges there is no anticipation on page 4. Further, it is also well established that a genus is not a disclosure of every unnamed species. *In re Baird*, 29 USPQ2d 1550 (Fed. Cir. 1994); *Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*, 9 USPQ2d 1962, 1970 (Fed Cir. 1989).

Beyond the foregoing note that when Winter provides guidance about what selections should preferably be made at column 2, lines 37-42, trimellitic based compounds are excluded -- R3 can only be COOMe and cannot be COOH. Winter thus teaches away from the invention. The Office Action observes that there is no proviso in Winter limiting R3 but while true, the fact that Winter's stated preference leads away from the invention cannot be ignored.

Winter teaches the compound of Formula I is the reaction product of a cyclic anhydride with a fatty amine at column 2, lines 44 et seq., and the Office Action acknowledges that no reaction product containing polyisobutylene amine (PIB) is disclosed although PIB is "encompassed". Polyisobutylene amine is not a fatty amine. In any event, even under the Office Action's encompassed approach, it must be kept in mind that R1 can also be a straight-chain or cyclic radical containing up to 30 carbons or a 10-30 carbon atom alkenyl, each of which can be substituted by up to 5 substituents

and even if a branched alkyl moiety, can be substituted by up to 5 substituents. Winter provides no reason to make all of the required choices simultaneously. Reliance on Winter requires a series of hindsight selections with the object of shoehorning Winter into the claims under consideration, none of which fairly reflects what would be understood by a person skilled in the art.

The Federal Circuit has observed:

[The *O'Farrell* decision] observed that most inventions that are obvious are also obvious to try, but found two classes where that rule of thumb did not obtain. First, an invention would not have been obvious to try when the inventor would have had to try all possibilities in a field unreduced by direction of the prior art. When “what would have been ‘obvious to try’ would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful” an invention would not have been obvious. *O'Farrell*, 853 F.2d at 903. This is another way to express the *KSR* prong requiring the field of search to be among a “finite number of identified” solutions. 550 U.S. at 421; *see also Procter & Gamble*, 566 F.3d at 996; *Kubin*, 561 F.3d at 1359. It is also consistent with our interpretation that *KSR* requires the number of options to be “small or easily traversed. *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1364 (Fed. Cir. 2008).”

Bayer Schering Pharma AG v. Barr Laboratories Inc., 91 USPQ2d 1569, 1572-73 (Fed. Cir. 2009).

It does not constitute obviousness “to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave no indication of which parameters were critical or no direction as to

which of the many possible choices is likely to be successful.” *PharmaStem Therapeutics v. ViaCell Inc.*, 83 USPQ2d 1289, 1305 (Fed. Cir. 2007) (quoting from *In re O’Farrell*, 7 USPQ2d 1673 (Fed. Cir. 1988).

Winter presents a disclosure which requires the skilled person to have to try all possibilities in a field either unreduced by direction of the prior art or reduced by excluding tricarboxylic reactants. Here, it would be necessary to try each of the numerous possible choices, and intentionally ignore the direction actually suggested in Winter (which points away from the invention). That means the invention would not have been obvious. *Bayer Schering Pharma AG*, *supra*; *O’Farrell*, *supra*.

In the Examination Guidelines For Determining Obviousness Under 35 U.S.C. 103 In View Of The Supreme Court Decision In *KSR International Co. v. Telefax, Inc.*, now incorporated into the MPEP, the Office pointed out that an “obvious to try” approach can establish obviousness but only where there was a finite number of identified, predictable solutions, with a reasonable expectation of success. In the first example describing how this Examination Guidelines standard is applied, there were only fifty-three (53) possible choices. In *Ex parte A*, 17 USPQ2d 1716 (BPAI 1990), the maximum number of possible combinations was 47, *Id.* at 1718. Review of precedent confirms that this is what was meant by a “finite” number of possibilities. But that pales in contrast to the number involved here, which is far into the billions. That does not meet the requirement for a finite number of identified, predictable solutions, with a reasonable expectation of success. Winter does not provide a finite number of identified, predictable solutions, with a reasonable expectation of success.

The Federal Circuit has also observed that “a disclosure of millions of compounds does not render a claim to three compounds obvious, particularly when that disclosure indicates a preference leading away from the claimed compounds”, *In re Baird*, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994). If 3 out of a million is not obvious, 1 out of a billion is certainly not obvious. Here, the number of combinations “encompassed” by Winter is huge, numbering far in excess of one billion, if not running into trillions or more, and Winter also teaches away from the invention by stating a preference for R3 to be COOMe. There must be some guidance in the reference (or elsewhere) which would lead one skilled in the art to what is “one in a million”. But there is none here.

Further, given the fact that the number of combinations and permutations falling within the scope of the Winter disclosure is immense, it constitutes, at the very best, a shotgun disclosure. The Board of Appeals has observed that “the likelihood of producing a composition such as here claimed from a disclosure such as shown by the ...patent [disclosing a very great number of permutations] would be about the same as the likelihood as discovering the combination of a safe from a mere inspection of the dials thereof.” *Ex parte Garvey*, 41 USPQ 583, 584 (emphasis by the Board), quoted with approval in *In re Luvisi*, 144 USPQ 646 (CCPA 1965). A shotgun disclosure does not guide the skilled person to a specific composition so as to make that composition obvious, *Ex parte Strobel*, 160 USPQ 352 (Bd. App. 1968), *In re Baird*, 29 USPQ at 1552 (3 out of millions of possibilities compounds is not obvious). The rule that the ability to reconstruct a composition without guidance or a reason to make selections is inadequate under Section 103, *Ex parte Levengood*, 28 USPQ2d 1300 (BPAI 1993), applies with even more force when a shotgun disclosure is involved. The Supreme Court

decision in *KSR*, the cases decided since that decision and the revision of the MPEP in light of the case law, have not changed this.

The fact that the claimed compound is a dispersant is unpredictable based on the Winter disclosure. As the title makes clear and the working example show, the Winter material is a synergist for other ingredients in the dispersions, such as dispersants or surfactants. In this connection, see col. 4, lines 10-15 and note the designation of nonionic surfactants as dispersants in the working examples (e.g., col. 5, lines 61-62 and col. 7, lines 3-4). Winter states that the cyclic imides provide enhanced fluidity and flocculation stability of a pigment dispersion without degrading other properties such as dispersibility, a property that the prior art did not provide (col. 1, lines 40-44), not that they act to disperse a pigment.

The Office Action, however, continues to assert that the Winter material is a “dispersant”. As just noted, Winter does not contain any such teaching. Instead, Winter says it is a synergist for other ingredients present in the dispersions, such as dispersants.

It will be appreciated from the foregoing that the Winter patent has many major deficiencies with respect to the claims being rejected. It provides no *prima facie* basis for contending anything claimed in this application is obvious. Not only does the Patil fail to remedy the deficiencies of Winter, it actually reinforces them.

To the extent that Patil discloses any type of dispersant, it is a polyisobutylene succinimide, as the Examiner has pointed out. Succinic acid, however, is a dicarboxylic acid. The reference therefore reinforces Winter’s teaching of using a

dicarboxylic derived material whereas the dispersant of the present invention is derived from a tricarboxylic entity. It is, of course, not proper to ignore any teaching in Patil which does not support the rejection, since "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art". *In re Hedges*, , 228 USPQ 685, 687 (Fed. Cir. 1986)(quoting *In re Wesslau*, 147 USPQ 391, 393 (CCPA 1965)). The ignored text in Patil teaches away from a tricarboxylic entity, as does Winter.

Moreover, there is no valid reason to take anything from Patil and include it in Winter. Winter relates to a colorant composition while Patil relates to an ashless dispersant in an of oleaginous composition. There is nothing in any portion of the Patil disclosure which teaches, suggests or even hints that any material disclosed therein can act as a dispersant for a colorant, much less that there is any possibility an isolated polyisobutylene moiety extracted from the polyisobutylene succinimide ashless dispersant might has some value if substituted for a moiety in some ingredient in a colorant dispersion. There is no reason to attempt to modify anything in Winter by Patil.

The reaction product of the present invention has excellent dispersing properties for a colorant used in non-polar systems, such as for example, oil-based printing inks. Nothing in the art teaches or suggests that such a reaction product may have these properties, and the fact that it does, is entirely unpredictable.

The deficiencies discussed above make it unnecessary to address other assertions made in the rejection.

In an abundance of caution, the attention of the Examiner is invited to US 7,576,146, even though it is not prior art to this case.

In view of all of the foregoing, applicant believes the pending application is in condition for allowance.

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